

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

The Applicant appreciates the allowance of claims 7-12, 15, 16, 19, 20, 23 and 24.

By the foregoing amendment, claim 1 has been amended. Thus, claims 1-24 are currently pending and subject to examination.

In the outstanding Office Action, the Examiner rejected claims 1-6, 17, 18, 21 and 22 under 35 USC § 103(a) as being unpatentable over Bailey et al. (US 2002/0085106, hereinafter "Bailey") in view of Kijima et al. (US 6,661,451, hereinafter "Kijima") and further in view of Miyamoto (US 2003/0090575, hereinafter "Miyamoto"). The Examiner also rejected claims 13 and 14 under 35 USC § 103(a) as being unpatentable over Bailey in view of Kijima in view of Miyamoto and further in view of Hashimoto (US 6,956,605, hereinafter "Hashimoto"). It is noted that claim 1 has been amended. To the extent that the rejections remain applicable to the claims currently pending, the Applicant hereby traverses the rejections, as follows.

The Applicants submit that none of the cited prior art, nor combination thereof, discloses or suggests each and every feature recited in independent claim 1, as amended.

The Reference to Bailey

The Examiner asserts that Bailey discloses a CMOS image sensor for a video/still camera. The CMOS image sensor of Bailey includes a pixel array 408 having rows and columns of photodiodes, a switching circuit including transistors M1-M4 for

controlling generation of an output signal representative of charge accumulated in a corresponding photodiode, and a row selection signal line disposed for each row. The row selection signal line of Bailey is electrically connected to corresponding switching circuits and is supplied with a row selection signal 48 for controlling generation of the output signal. The CMOS image sensor of Bailey further includes a reset signal line disposed for each photoelectric conversion element row, the reset signal line being electrically connected to corresponding switching circuits and being supplied with a reset signal 20 for controlling drainage of charges.

The Examiner further asserts that Bailey discloses a row decoder 414 for selecting rows and sequentially supplying a reset signal to each reset signal line, a column decoder 410 connected to an AD converter 420, and a moving or still image mode controller (state machine 404) connected to the MOS type solid-state image pickup device. The state machine 404 controls operation of the MOS type solid-state image pickup device, to allow the image pickup device to perform image integration, read and reset (draining charges). Bailey discloses both a line (row) mode operation and a frame operation.

Bailey, however, does not disclose or suggest at least the combination of a correcting still image mode controller, a still image indication signal generator for generating a still image indication signal for indicating image pickup of a still image, or a flashing device for emitting a flash in response to a reception of a predetermined signal, as recited in claim 1, as amended.

In the outstanding Office Action, the Examiner admits that Bailey neither discloses nor suggests that the system includes a still image indication signal generator

for generating a still image indication signal for indicating image pickup of a still image, and a flashing device for emitting a flash in response to a reception of a predetermined signal, wherein a flashing device operation signal for operating said flashing device is made in the state that said readout row-shifter and said reset row-shifter are not operated.

The Examiner cites Kijima and Miyamoto as allegedly curing the deficiencies that exist in Bailey.

The Reference to Kijima

Kijima discloses a CCD image sensor having a trigger for switching from a high-speed reading mode to a high-quality still image mode. The high-speed reading mode of Kijima is for supplying a dynamic display to an LCD or the like, and not for recording a video. The high-quality still image mode of Kijima is for taking a still photograph. The CCD image sensor of Kijima is ordinarily in the high-speed image mode, so that a user may view a dynamic image on the display, and switches "immediately" (after a predetermined time to perform auto focusing control) to the high-quality still image mode upon depression of a trigger 46. See Kijima at col. 15, lines 24-35. Kijima discloses that therefore, "[S]ince only the AF control is performed in accordance with control data which can be obtained at a rate which is twice the rate in a usual state because of switch of the reading mode and change of control data, a fine image focused more quickly can efficiently be obtained at an optimal shutter release opportunity." See id., col. 15, lines 36-41.

The Examiner asserts that Fig. 12 of Kijima "implies that neither the electronic shuttering nor the image signal read operation is interrupted by the still image indication"

because the dynamic image is readout and displayed after the depression of the trigger. Office Action, pp. 6-7. However, as noted above, Kijima discloses that upon depression of the trigger, the read mode is immediately switched to the still image mode. Thus, the image signal read operation is necessarily interrupted by the still image indication in Kijima.

Therefore, the combination of Kijima and Bailey does not disclose or suggest at least the combination of a still image indication signal generator for generating a still image indication signal for indicating image pickup of a still image; a flashing device for emitting a flash in response to a reception of a predetermined signal; a moving image mode controller being connected to said MOS type solid-state image pickup device for continually controlling operation of said MOS type solid-state image pickup device, said moving image mode controller makes said MOS type solid-state image pickup device repeat (a) an image signal read operation of sequentially supplying said row selection signal from the readout row-shifter to a plurality of predetermined row selection signal lines for sequentially generating said output signals on each output signal line and (b) an electronic shutter operation of sequentially supplying said reset signal from the reset row-shifter to said reset signal lines corresponding to at least said rows to be subjected to said image signal read operation for sequentially draining said charges accumulated in the photoelectric conversion elements; and a correcting still image mode controller being connected to said MOS type solid-state image pickup device for controlling operation of said MOS type solid-state image pickup device in place of said moving image mode controller when said still image indication signal is made, wherein a flashing device operation signal for operating said flashing device is made in the state

that said readout row-shifter and said reset row-shifter are not operated, as recited in claim 1, as amended.

The Reference to Miyamoto

In the outstanding Office Action, the Examiner asserts that Miyamoto discloses a digital camera that provides a flash illumination dependent upon a flash on/off switch.

Miyamoto discloses an electronic still camera having a MOS type image sensor capable of performing high-speed continuous shooting by performing a high-speed reading by horizontal thinning, and storing video signals for use in multiple pictures. The electronic camera of Miyamoto includes a flash unit 16, a flashing controlling sensor 20 and a flash mode switch 24. However, Miyamoto is silent regarding when the flash signal is provided, with respect to readout and reset operations.

Therefore, Miyamoto does not disclose or suggest at least the combination of a flashing device for emitting a flash in response to a reception of a predetermined signal; a moving image mode controller being connected to said MOS type solid-state image pickup device for continually controlling operation of said MOS type solid-state image pickup device, said moving image mode controller makes said MOS type solid-state image pickup device repeat (a) an image signal read operation of sequentially supplying said row selection signal from the readout row-shifter to a plurality of predetermined row selection signal lines for sequentially generating said output signals on each output signal line and (b) an electronic shutter operation of sequentially supplying said reset signal from the reset row-shifter to said reset signal lines corresponding to at least said rows to be subjected to said image signal read operation for sequentially draining said charges accumulated in the photoelectric conversion elements; and a correcting still

image mode controller being connected to said MOS type solid-state image pickup device for controlling operation of said MOS type solid-state image pickup device in place of said moving image mode controller when said still image indication signal is made, wherein a flashing device operation signal for operating said flashing device is made in the state that said readout row-shifter and said reset row-shifter are not operated, as recited in claim 1, as amended.

In addition, neither Kijima nor Miyamoto discloses or suggests the remaining deficiencies of Bailey noted above.

For at least these reasons, the Applicants submit that none of the cited references, nor combination thereof, discloses or suggests at least the combination of an electronic camera that does not use a mechanical shutter, and that includes a MOS type solid-state image pickup device comprising (i) a semiconductor substrate, (ii) a number of photoelectric conversion elements formed in one surface of said semiconductor substrate in a matrix shape along a plurality of rows and columns, (iii) a switching circuit provided for each photoelectric conversion element and electrically connected to an corresponding photoelectric conversion element, each switching circuit controlling generation of an output signal representative of charge accumulated in said corresponding photoelectric conversion element and drainage of said charge, (iv) a row selection signal line disposed for each photoelectric conversion element row and electrically connected to corresponding switching circuits, each row selection signal line being supplied with a row selection signal for controlling generation of said output signal, (v) a plurality of output signal lines each of which is corresponded to at least one pixel column and on each of which said output signal is generated, (vi) a reset signal line

disposed for each photoelectric conversion element row and electrically connected to corresponding switching circuits, each reset signal line being supplied with a reset signal for controlling drainage of said charges, (vii) a readout row-shifter for sequentially supplying said row selection signal to each row selection signal line, (viii) a reset row-shifter for sequentially supplying said reset signal to each reset signal line, and (ix) an output device electrically connected to each output signal line for sequentially generating and outputting image signals representative of said output signals; an image signal processor for generating moving image data or still image data based on said image signals output from said MOS type solid-state image pickup device; a still image indication signal generator for generating a still image indication signal for indicating image pickup of a still image; a flashing device for emitting a flash in response to a reception of a predetermined signal; a moving image mode controller being connected to said MOS type solid-state image pickup device for continually controlling operation of said MOS type solid-state image pickup device, said moving image mode controller makes said MOS type solid-state image pickup device repeat (a) an image signal read operation of sequentially supplying said row selection signal from the readout row-shifter to a plurality of predetermined row selection signal lines for sequentially generating said output signals on each output signal line and (b) an electronic shutter operation of sequentially supplying said reset signal from the reset row-shifter to said reset signal lines corresponding to at least said rows to be subjected to said image signal read operation for sequentially draining said charges accumulated in the photoelectric conversion elements; and a correcting still image mode controller being connected to said MOS type solid-state image pickup device for controlling operation of

said MOS type solid-state image pickup device in place of said moving image mode controller when said still image indication signal is made, wherein a flashing device operation signal for operating said flashing device is made in the state that said readout row-shifter and said reset row-shifter are not operated, an exposure time of each photoelectric conversion element is set equal to or shorter than a time duration including an issuance time of said flashing device operation signal and necessary for performing two image signal read operations before and after one electronic shutter operation, and after a lapse of said exposure time, said correcting still image mode controller makes said MOS type solid-state image pickup device perform an image signal read operation of sequentially supplying said row selection signal from the readout row-shifter to each row selection signal line for sequentially generating said output signals on each output signal line, as recited in claim 1, as amended.

For at least these reasons, the Applicants submit that claim 1 is allowable over the cited prior art. As claim 1 is allowable over the cited prior art, the Applicants submit that claims 2-6, 13-14, 17-18, and 21-22, which depend from allowable claim 1, are likewise allowable over the cited prior art.

Conclusion

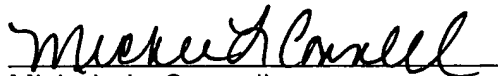
For all of the above reasons, it is respectfully submitted that the claims currently pending patentably distinguish the present invention from the cited references. Accordingly, reconsideration and withdrawal of the outstanding rejections and issuance of a Notice of Allowance are earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is invited to contact the undersigned representative at the telephone number listed below.

In the event this paper has not been timely filed, Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, referencing docket number 107317-00028.

Respectfully submitted,

ARENT FOX, PLLC



Michele L. Connell
Registration No. 52,763

Customer No. 004372

1050 Connecticut Avenue, N.W., Suite 400
Washington, D.C. 20036-5339
Tel: (202) 857-6104
Fax: (202) 857-6395

CMM/MLC